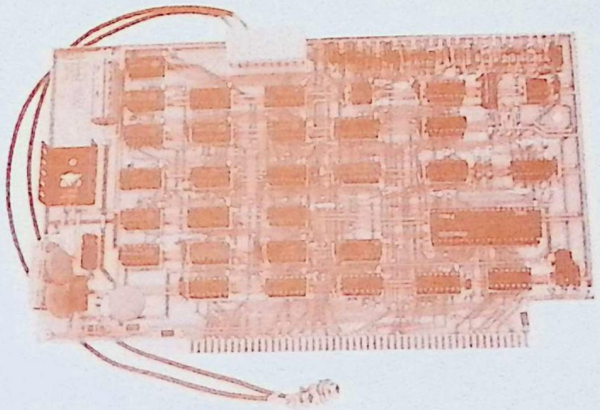
Technical Information

altair™ 680b-KCACR

Mass data storage is now available for the Altair 680b. By utilizing the 680b-KCACR, the 680b bus can be interfaced with an audio cassette recorder allowing inexpensive saving and loading of programs. The KCACR design is based on the Kansas City Standard, making data transfer highly reliable under widely varying conditions without circuitry adjustments.



Features

In addition to eliminating circuitry alignment for precise operation, the 680b-KCACR offers a host of other design features. These include: motor control circuitry for starting and stopping tape motion, low power consuming CMOS logic and a digital demodulator for logic level discrimination. Sockets are provided for all ICs. Test points are provided at key circuit areas.

Kansas City Standard

The Kansas City Standard is a method of audio cassette data interfacing which employs frequency shift modulation. Data transfer is at a rate of 300 baud with a + 20, – 20% playback speed tolerance. The self clocking action of the audio frequencies used for modulation allows for variations in tape speed and head alignment. Because of these flexible parameters, hardware cost and complexity is minimized. The recorded character is comprised of a space as a start bit, eight data bits and two or more marks as stop bits. A space (logical zero) bit consists of four cycles at a frequency of 1200 Hz. Mark (logical one) bits consist of eight cycles at a frequency of 2400 Hz.

Specifications

Demodulator Playback Speed Tolerance: + 20, – 20% from recorded speed

Demodulator Input Levels (Playback): 300MV peak to peak minimum (100MV RMS)
10V peak to peak maximum (3.5V RMS)

Demodulator Input Impedance: 10K ohms

Modulator Output Level: 30 MV P-P (suitable for microphone input)

Modulator Output Impedance: 1K ohms.

Error Rate: Relative to quality of recorder and tape, typically less than 1 error in 10^6 bits READ with low noise audio tape.

Power Requirements: + 8 Volts unregulated —220 MA typical
– 16 Volts unregulated—50MA typical
(less than 3 watts total power)

Requires 1 slot in 680 bus.

Audio Cable Connectors: Mini phone jacks, 3.5MM dia mounted on back panel.

680b Bus Address: FØ1Ø—Status, control
FØ11—Read data, write data

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2450 Alamo S.E. /Albuquerque, New Mexico 87106